

Claims

[c1]

What is claimed is:

1. An optical disk drive module installed in a flat panel display personal computer for lifting up and lowering a disk drive, the flat panel display personal computer comprising a flat panel display, the optical disk drive module comprising:

a chassis module disposed at a rear side of the flat panel display; and
a drive carrier rotatably disposed in the chassis module for positioning the disk drive;

wherein when the drive carrier swings away from the chassis module, the optical disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier moves toward the chassis module, the optical disk drive module will lift up the disk drive to position the disk drive at the rear side of the flat panel display.

[c2]

2. The optical disk drive module of claim 1 wherein:

the chassis module comprises:

a chassis body;

a first side plate and a second side plate formed at two sides of the chassis body and movably fastened to the rear side of the flat panel display, the first side plate having a first aperture, the second side plate having a second aperture facing the first aperture;

a first gearwheel disposed on an inner wall of the first side plate; and

a second gearwheel disposed on an inner wall of the second side plate facing the first gear, the first and second gearwheels having effectively equal radii $D1$;
and

the drive carrier comprises:

a carrier body;

a first side plate and a second side plate formed at two sides of the carrier body, the first side plate having a first protruded portion inserted into the first aperture of the first side plate of the chassis module, the second side plate having a second protruded portion inserted into the second aperture of the second side plate of the chassis module;

a first positioning hook positioned at an upper end of the first side plate, and a second positioning hook positioned at an upper end of the second side plate;
a first gear disposed at one end of the first side plate for engaging with the first gearwheel; and
a second gear disposed at one end of the second side plate opposing the first gear for engaging with the second gearwheel, the first and second gears having effectively equal radii D_2 which is larger than D_1 ;
wherein when the drive carrier rotates with respect to the first protruded and the second protruded portion to swing away from the chassis module, the optical disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier rotates with respect to the first protruded portion and the second protruded portion to swing toward the chassis module, the optical disk drive module will raise up the disk drive to position the disk drive at the rear side of the flat panel display.

[c3]

3.The optical disk drive module of claim 2 further comprising a cover slidably fastened within the drive carrier, the cover comprising:
a cover body having a first positioning slot for receiving the first positioning hook, and a second positioning slot for receiving the second positioning hook so as to fasten the cover within the drive carrier; and
a first side plate and a second side plate formed at two sides of the cover and outside of the disk drive so as to fix the cover outside of the disk drive, the first side plate and the second side plate being slidably disposed within the drive carrier so as to dispose the disk drive within the drive carrier.

[c4]

4.An optical disk drive module installed in a flat panel display personal computer for lifting up and lowering a disk drive, the flat panel display personal computer comprising a flat panel display, the optical disk drive module comprising:
a chassis module disposed at a rear side of the flat panel display;
a drive carrier rotatably disposed in the chassis module; and
a cover fixed outside of the disk drive and slidably fastened within the drive carrier so as to position the disk drive in the drive carrier;
wherein when the drive carrier swings away from the chassis module, the optical

disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier moves toward the chassis module, the optical disk drive module will lift up the disk drive to position the disk drive at the rear side of the flat panel display.

[c5]

5.The optical disk drive module of claim 4 wherein:

the chassis module comprises:

a chassis body;

a first side plate and a second side plate formed at two sides of the chassis body and movably fastened to the rear side of the flat panel display, the first side plate having a first aperture, the second side plate having a second aperture facing the first aperture;

a first gearwheel disposed on an inner wall of the first side plate; and

a second gearwheel disposed on an inner wall of the second side plate facing the first gearwheel, the first and second gearwheels having effectively equal radii $D1$;

the drive carrier comprises:

a carrier body;

a first side plate and a second side plate formed at two sides of the carrier body, the first side plate having a first protruded portion inserted into the first aperture of the first side plate of the chassis module, the second side plate having a second protruded portion inserted into the second aperture of the second side plate of the chassis module;

a first positioning hook positioned at an upper end of the first side plate, and a second positioning hook positioned at an upper end of the second side plate;

a first gear disposed at one end of the first side plate for engaging with the first gearwheel; and

a second gear disposed at one end of the second side plate opposing the first gear for engaging with the second gearwheel, the first and second gears having effectively equal radii $D2$ which is larger than $D1$; and

the cover comprises:

a cover body having a first positioning slot for receiving the first positioning hook, and a second positioning slot for receiving the second positioning hook

so as to fasten the cover within the drive carrier; and
a first side plate and a second side plate formed at two sides of the cover and
outside of the disk drive so as to fix the cover outside of the disk drive, the first
side plate and the second side plate being slidably disposed within the drive
carrier so as to dispose the disk drive within the drive carrier;
wherein when the drive carrier rotates with respect to the first protruded
and the second protruded portion to swing away from the chassis module, the
optical disk drive module will lower the disk drive to expose the disk drive
below the flat panel display; and when the drive carrier rotates with respect to
the first protruded portion and the second protruded portion to swing toward
the chassis module, the optical disk drive module will raise up the disk drive to
position the disk drive at the rear side of the flat panel display.

[c6]

6.A flat panel display personal computer comprising:

a flat panel display;

a computing module disposed on a rear side of the flat panel display and

coupled to the flat panel display; and

an optical disk drive module disposed at the rear side of the flat panel display
for lifting up and lowering a disk drive, the optical disk drive module
comprising:

a chassis module disposed at the rear side of the flat panel display; and

a drive carrier rotatably disposed in the chassis module for positioning the disk
drive;

wherein when the drive carrier swings away from the chassis module, the optical
disk drive module will lower the disk drive to expose the disk drive below the
flat panel display; and when the drive carrier moves toward the chassis module,
the optical disk drive module will lift up the disk drive to position the disk drive
at the rear side of the flat panel display.

[c7]

7.The flat panel display personal computer of claim 1 wherein:

the chassis module comprises:

a chassis body;

a first side plate and a second side plate formed at two sides of the chassis
body and movably fastened to the rear side of the flat panel display, the first

side plate having a first aperture, the second side plate having a second aperture facing the first aperture;

a first gearwheel disposed on an inner wall of the first side plate; and

a second gearwheel disposed on an inner wall of the second side plate facing the first gearwheel, the first and second gearwheels having effectively equal radii D1; and

the drive carrier comprises:

a carrier body;

a first side plate and a second side plate formed at two sides of the carrier body, the first side plate having a first protruded portion inserted into the first aperture of the first side plate of the chassis module, the second side plate having a second protruded portion inserted into the second aperture of the second side plate of the chassis module;

a first positioning hook positioned at an upper end of the first side plate, and a second positioning hook positioned at an upper end of the second side plate;

a first gear disposed at one end of the first side plate for engaging with the first gearwheel; and

a second gear disposed at one end of the second side plate opposing the first gear for engaging with the second gearwheel, the first and second gears having effectively equal radii D2 which is larger than D1;

wherein when the drive carrier rotates with respect to the first protruded portion and the second protruded portion to swing away from the chassis module, the optical disk drive module will lower the disk drive to expose the disk drive below the flat panel display; and when the drive carrier rotates with respect to the first protruded portion and the second protruded portion to swing toward the chassis module, the optical disk drive module will raise up the disk drive to position the disk drive at the rear side of the flat panel display.

[c8]

8. The flat panel display personal computer of claim 7 further comprising a slidably fastened within the drive carrier, the cover comprising:

a cover body having a first positioning slot for receiving the first positioning hook, and a second positioning slot for receiving the second positioning hook so as to fasten the cover within the drive carrier; and

